The XM29
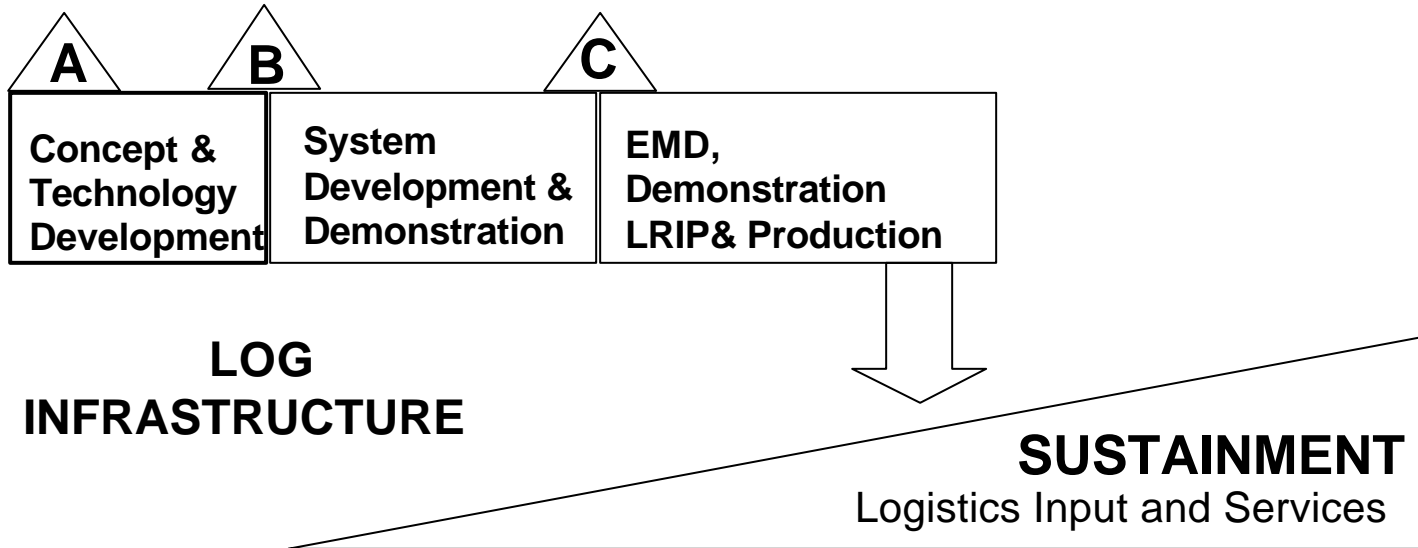# "No Place to Hide"

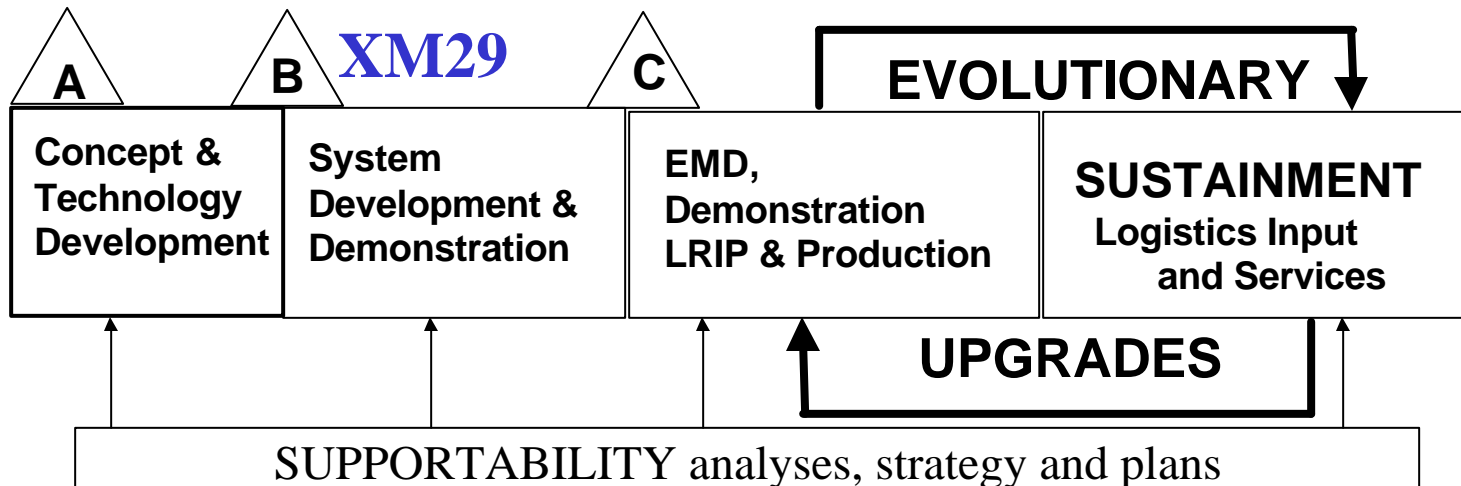# *How OICW support costs were cut in half BEFORE there was a design.*

Objective Individual Combat Weapon – now called
RIFLE: integrated air burst weapon system, XM29

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TRADITIONAL Mindset

A   **B**   **C**

Concept & Technology Development	System Development & Demonstration	EMD, Demonstration LRIP& Production

LOG INFRASTRUCTURE

SUSTAINMENT
Logistics Input and Services

IMPROVED Life Cycle Mindset

A   **B** **XM29**   **C**   **EVOLUTIONARY**

Concept & Technology Development	System Development & Demonstration	EMD, Demonstration LRIP & Production	SUSTAINMENT Logistics Input and Services

UPGRADES

SUPPORTABILITY analyses, strategy and plans

OICW now XM29
Three EARLY Architectures

#1

#2A

#3A

HE Only with Attachable KE Pistol

Fully Integrated System (one housing)
<u>LIGHTEST WEIGHT</u> and met most ORD requirements.

<u>KPP is WEIGHT</u>

Integrated Weapon w/ Separable TA/FCS

#2B *Was SIMILAR except two separately functioning weapons.*

Closest to the ORD.

20MM Single Barrel System

#3B

Go Forward Plan as of Feb 01

- **<u>Quantify architecture supportability factors</u>**
- Introduce CAIV into architecture decisions
- Apply DFA/DFM to architecture alternatives
- Utilize architecture mock-ups etc. to integrate human factors: Mock-up(s); SAST; Other
- Conduct independent assessment by "Selected Experts"
                 Architecture;   Technology Assessment
- Establish specific in-process decision points leading
                 to down select of one (1) architecture

Innovative Tactics

The CONCEPT of our task was changed. Instead of looking for the traditional one-design estimate, a number plus or minus . .

"How much will this cost?"<u>we asked</u>

"Can we afford to support this?"

Support cost <u>range</u> estimates will show if total costs are in your affordability ballpark.

Innovative Tactics

2) Gathered **consensus data** when there was no cost or test data for the new system.

3) Used **ranges** of **likely reliabilities** when estimates were unreliable.

Innovative Tactics #4

4) Ran standard level-of-repair analysis (LORA) to show **RELATIVE COSTS** for proposed architectures**.**

Loaded the hold-constant data by finding good numbers wherever possible.

**Got consensus** for all inputs – contractors and government**.**

Focused on variables. (architecture <u>differences</u>)

Innovative Tactics 5 & 6

5) Focused design engineer attention on
      higher reliability-improvement payoffs.

6) Got decision-maker attention by showing
      current systems compared to proposed.
(we used worst and best guess reliabilities)

Normalized Maintenance Policy Cost (Peace Hours)
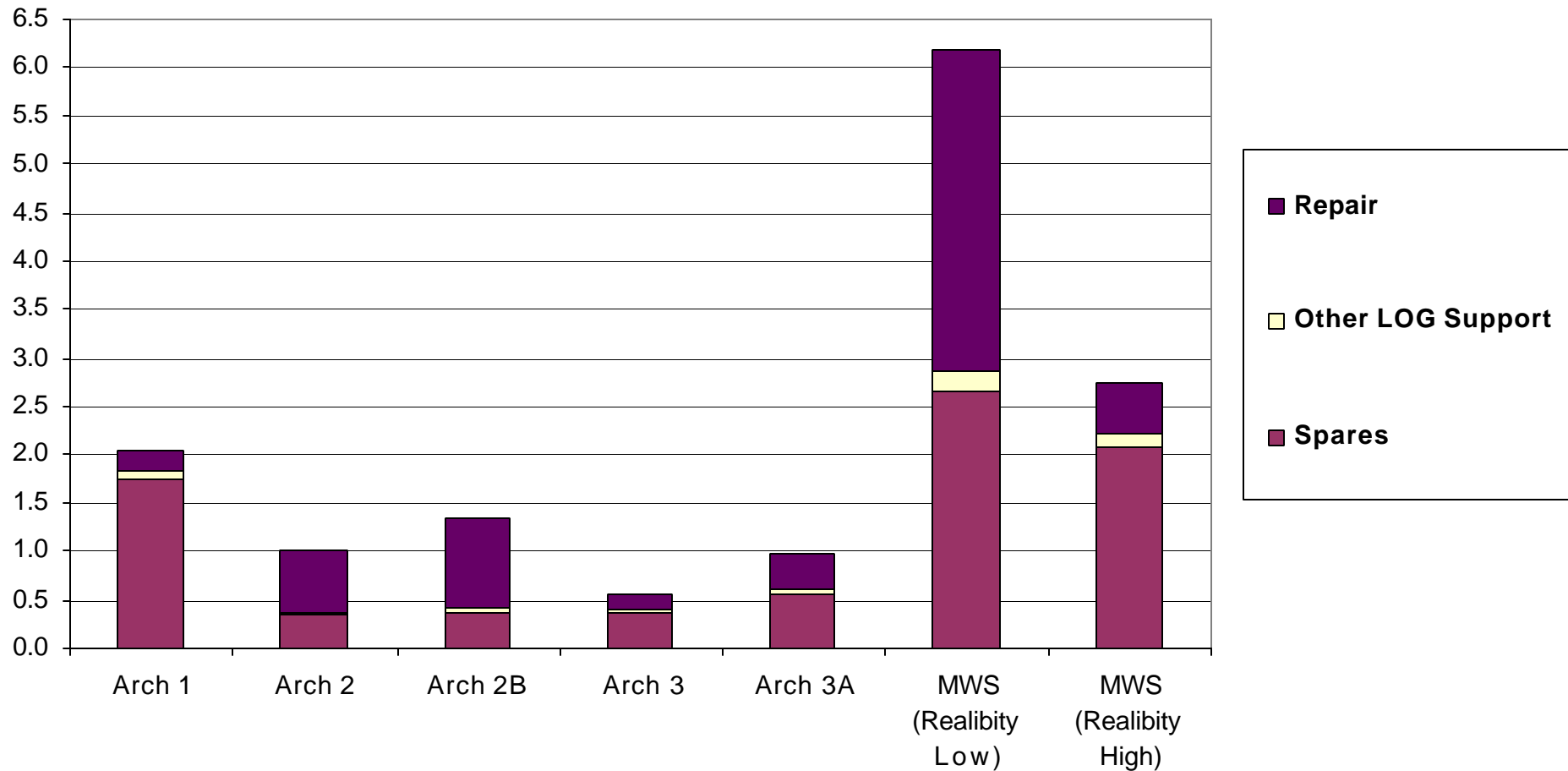
Architecture **2 = 1.0**   Architecture 1 = **2.0**[+] but lightest

Architectures 1 (fully integrated) **3** + **3A** **were eliminated.**

Arch 3 not ORD   **2B closest to the ORD**   "2B or not 2B ?"

Go forward selection = **2A**. Concept drawing only.
Weapon integrated. Fire control separable.

Lessons Learned #1 of 5

1) You CAN influence basic architecture choices BEFORE there is a design.

The analysis quantifies the RELATIVE cost-difference for decision making.

Is this useful for influencing make-or-buy, COTS choices, competing architectures or companies or countries??

Lessons Learned

2) **Top management pays attention**
   when current system costs are
   compared to proposed new system.

3) The **CONTRACT** should specify early
   LORA **for architecture influence**.
   We <u>suggested</u> LOGSA's COMPASS.

Lessons Learned 4 & 5

4) Someone has to be the software expert and also produce graphic summaries of results.

5) Loading the database is hard work.
   But the loaded data base is easily updated.

The database is VERY useful later,
   for many other purposes.
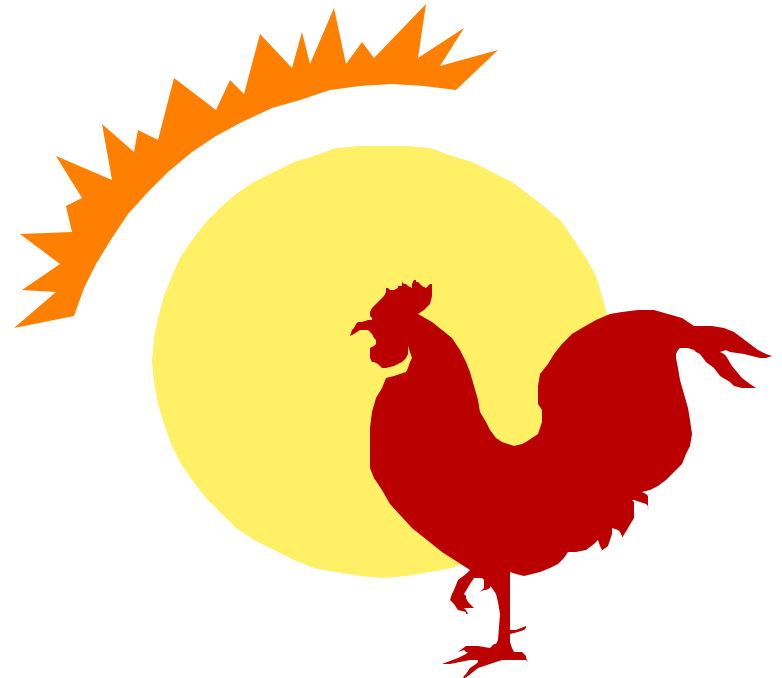
Support Costs vs %Ao
(ONE day turnaround to get data.)

Support Costs

590
580 — 580
570 — 566
560 — 561
550 — 556   555   555
540

%Ao = 99   95   90   85   80   75
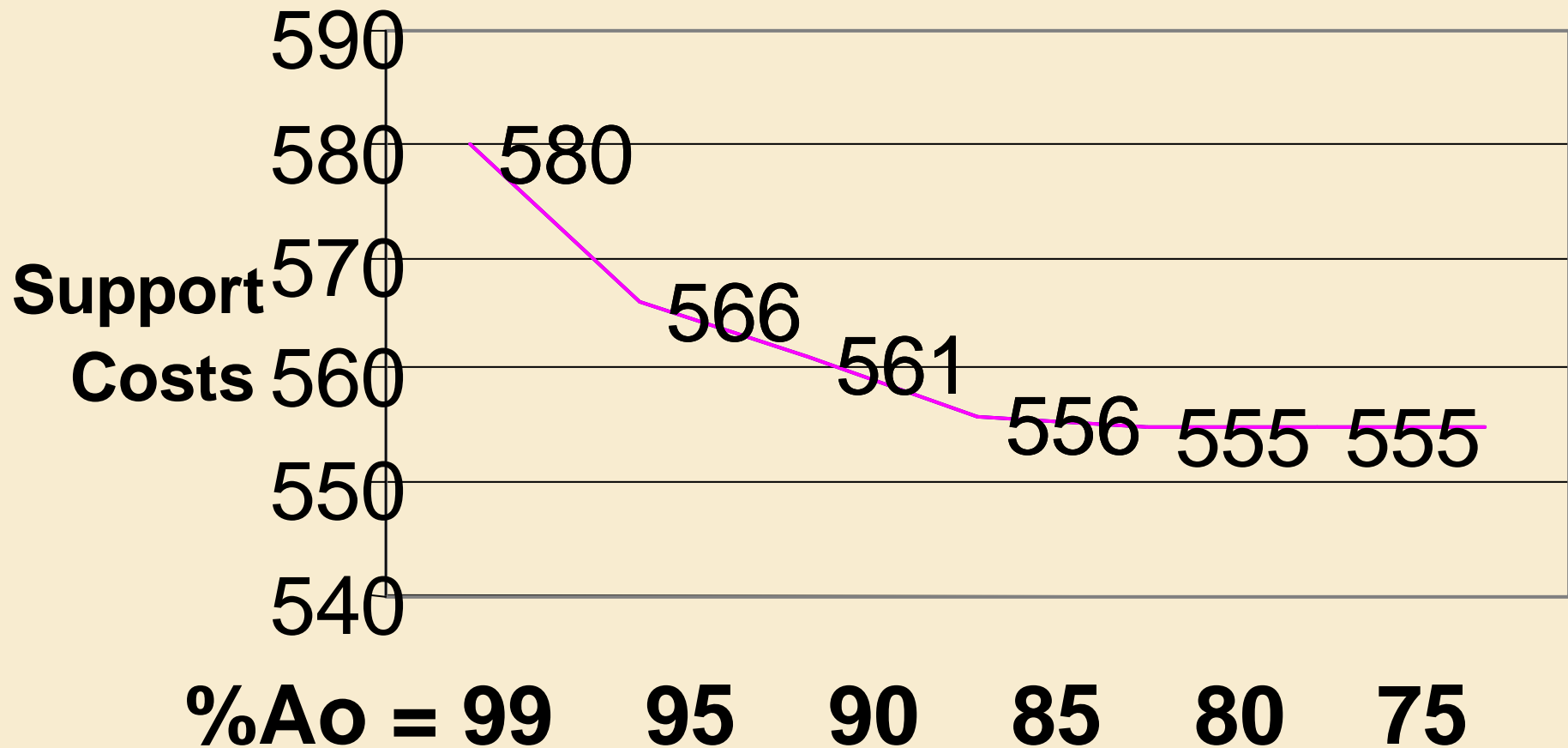
NOTE: These are OLD numbers.   Relative differences OK.

RoosterLog™

http://www.RoosterLog.com

The EARLY Voice of Supportability.

CONCLUSION: favored architecture NOT affordable!